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Cajanus elongatus (Benth.) Maesen (Fabaceae): An addition to the legume flora of Odisha, India

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ABSTRACT

Intensive field surveys were conducted in Bonai Forest Division, Odisha has yielded several interesting plants. Among them *Cajanus elongatus* (Benth.) Maesen (Fabaceae) extended its geographical distribution in the state of Odisha and is reported here as a new record for the state. The plant was collected from the West Dandpat Reserve Forest, Bonai Range, Bonai Forest Division of Sundargarh district. A detailed morphological description with photographs, distribution, associate flora, and phenology of the taxon are provided for easy identification in the field.

Keywords: New record, Fabaceae, *Cajanus*, Odisha

1. INTRODUCTION

Fabaceae, one of the three largest families of angiosperms encompasses about 765 genera and 20,000 known species in the world flora. In India, they occupy the third position in the list of ten dominant families and for Odisha they occupy the second position followed by Poaceae (Haines 1922; Bairiganjan 1985; Saxena & Brahmam 1994). The Order Fabales consists of three major groups of genera and the taxonomic rank of these groups is one on which opinion has been divided. Some researchers considered the groups as three subfamilies (Caesalpinoideae, Mimosoideae, and Papilionoideae) of the family Leguminosae, whereas others have accorded each group family rank (Caesalpiniaceae, Mimosaceae, and Fabaceae). Formerly the genus Caesalpiniaceae and Mimosaceae have been placed in Fabaceae (Ross 1998). In 1994, Saxena and Brahmam reported about 195 species of the family Fabaceae from the state of Odisha (Saxena & Brahmam 1994).

Cajanus is a genus in the Fabaceae (subfamily Papilionoideae) having about 34 species distributed in Western Africa, the Indian subcontinent, Eastern to South-Eastern Asia, Malaysia, and Northern Australia (Schrire 2005; Leeratiwong 2018). Typical *Cajanus* members are with resinous glands on the vegetative and reproductive parts and fruits with transverse grooves between the seeds (Niyomdharm 1994). Bonai Forest Division is situated on the North-Western boundary of Sundargarh district of the state of Odisha in

Eastern India (Kumar et al. 2021). During floral diversity inventory in Bonai Forest Division during 2021- 2022, the authors came across an interesting legume species belonging to the genus *Cajanus* from West Dandpat Reserve Forest of Bonai Range, Bonai Forest Division, (21° 43' 20" N, 84° 52' 34" E, 251.85 m elevation), which after critical examination of their morphological characters and consultation of relevant literature, was identified as *Cajanus elongatus* (Benth.) Maesen. This species is found in the Assam and Meghalaya regions of India (CPI 2014). In Odisha, only a single species is reported from the genus *Cajanus* i.e. *Cajanus cajan*. Hence, *Cajanus elongatus* (Benth.) Maesen. has not been reported from Odisha by Hains (1921), Saxena and Brahmam 1994 or any other researchers till date. Field observations are noted down using the Field Data Book. A brief description of the collected plant, photographs, phenology, and associated flora are provided here. The voucher specimen is deposited in the Biodiversity and Conservation Lab., Ambika Prasad Research Foundation, Odisha [APRFH-69] (Figure 1).

Taxonomic Treatment

Cajanus elongatus (Benth.) Maesen, Agric. Univ. Wageningen Pap. 85(4): 115. 1986.- *Dolichos elongatus* Grah. ex Wall., Numer. List nr. 5543. 1831-32, nom. nud. - *Atylosia elongata* Benth. in Miq., Pl. Jungh. 1: 243. 1852; Baker in Hook.f., Fl. Brit. India 2: 215. 1876; Thuan in Aubrév. & J.-F. Leroy, Fl. Cambodge, Laos & Vietnam 17: 112. 1979)- *Cantharospermum elongatum* (Benth.) Raizada in Mooney, Suppl. Bot. Bihar & Orissa: 53. 1950. Type: Nepal, 1821, Wallich 5543.

Description

Perennial vine; branches with dense cover of long brown hairs and sessile glands, glabrescent. Leaves covered with dense, short hairs, petioles 1-5 cm long, rachis 0 -1.5 mm long, grooved, with dense long hairs and sessile glands; stipules ovate-triangular or lanceolate-triangular, hairy, caducous; terminal leaflet rhomboid or obovate- rhomboid, 1.5-3.5 x 1-3 cm, chartaceous to slightly coriaceous, base rounded or slightly cordate, margins entire, apex acute, both surfaces sparsely to moderately long-hairy and with sessile glands; lateral leaflets obliquely ovate, 1- 3.5 x 1- 3 cm, apex acute, base obliquely rounded; secondary veins 3-5 pairs; petiolules 1-2 mm long, hairy; stipel absent. Inflorescences axillary, 2.5- 5 cm long, with 2- 6 flowers, bearing 2 flowers at each node; peduncles 2- 4 cm long, with both densely long and short hairs mixed with sessile glands; bracts elliptic, 1- 3.5 x 0.5 -1 mm, apex acuminate, both sides hairy, caducous; pedicels 5-10 mm long, recurved & moderately to sparsely hairy. Calyx cup-shaped; tube 3-5 mm long; lobes linear-lanceolate or narrowly triangular, unequal, 5-9 x 1-2 mm; two upper calyx lobes connate for up to half of their length; outside moderately to densely hairy and with sessile glands; inside glabrous. Corolla yellow, glabrous, standard obovate or ovate, 1.2-1.5 x 1-1.2 cm, reflexed, apex emarginate, claw 2- 2.5 mm long; wings irregularly oblong, 1-1.5 x 0.4 - 0.7 cm, apex obtuse, incurved, claw 2.5- 3 mm long, blade with an auricle, free from keel petals; keel boat-shaped, 0.8- 1.2 x 0.5- 0.7 cm, limb incurved, apex obtuse, claw 2.5-3.1 mm long, blade without auricle. Stamens: staminal tube 10-13 mm long, free part of filaments 4- 6 mm long, upcurved, glabrous; anthers oblong-ovate, 0.5- 0.6 mm long. Ovary ovate-oblong, 2-4 x 1-1.2 mm, 2- 3 ovules, stipe 0.3- 0.5 mm long, densely long-hairy; style 14-15 mm long, curved at upper part, glabrous, Pods 2.0-2.5 x 0.5-1.1 cm, 3-4- seeded (Plate 1).

Type specimen: India, Odisha, Bonai Forest Division, Bonai Range, West Dandpat Reserve Forest (21° 43' 20" N, 84° 52' 34" E, 251.85 m elevation), 27th February 2022, Sweta Mishra & Sanjeet Kumar, APRFH 069.

Phenology: Flowering & Fruiting: November- May

Distribution: Nepal, India, Bhutan, Myanmar and Vietnam

Habitat: Along edges of mixed deciduous forest.

Associate species: *Andrographis paniculata* (Burm. f.) Nees, *Flemingia chappar* Buch. -Ham. ex Benth., *Helicteres isora* Linn., *Combretum roxburghii* Spreng., *Hemigraphis latebrosa* (Roth) Nees. etc.

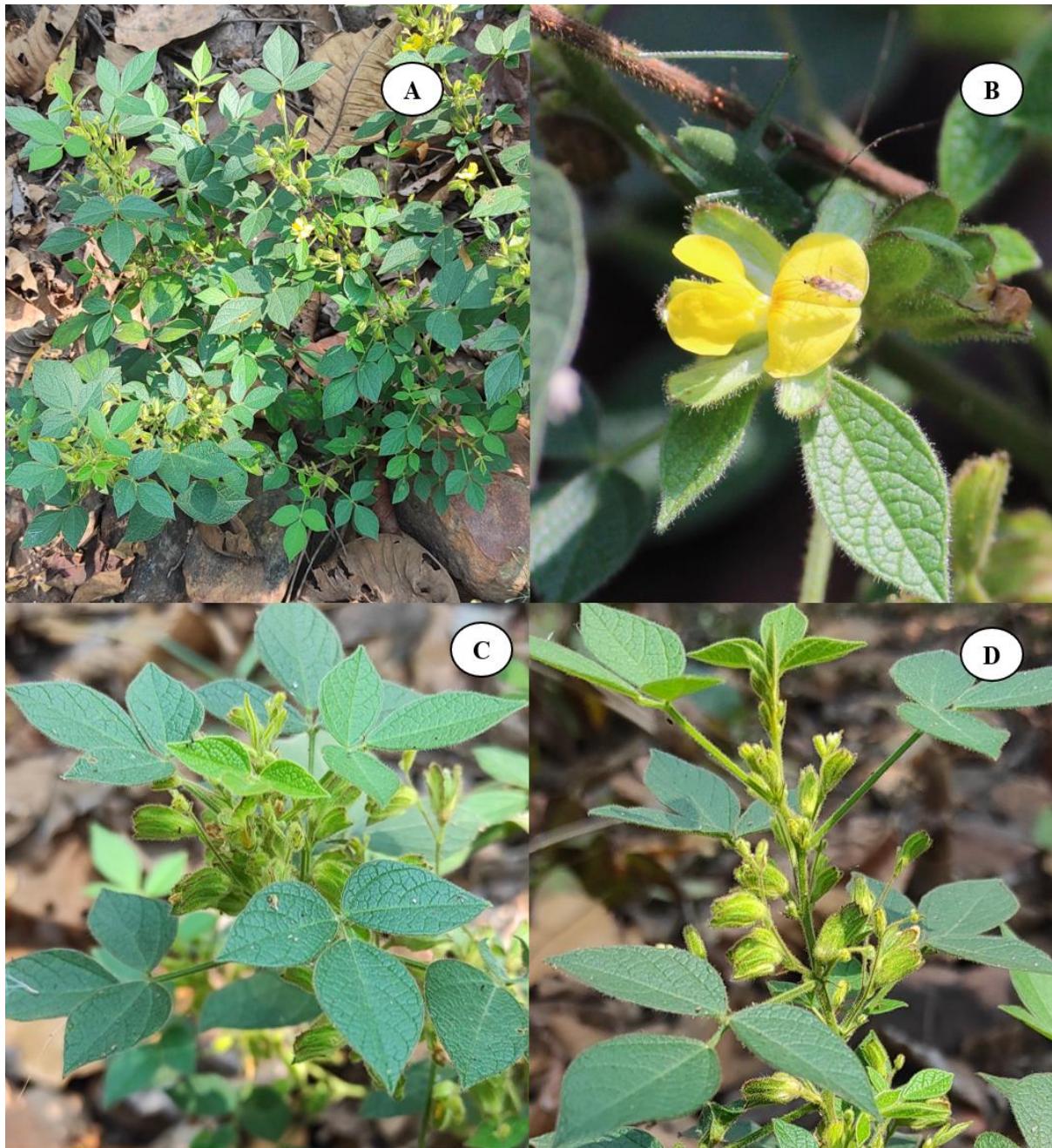
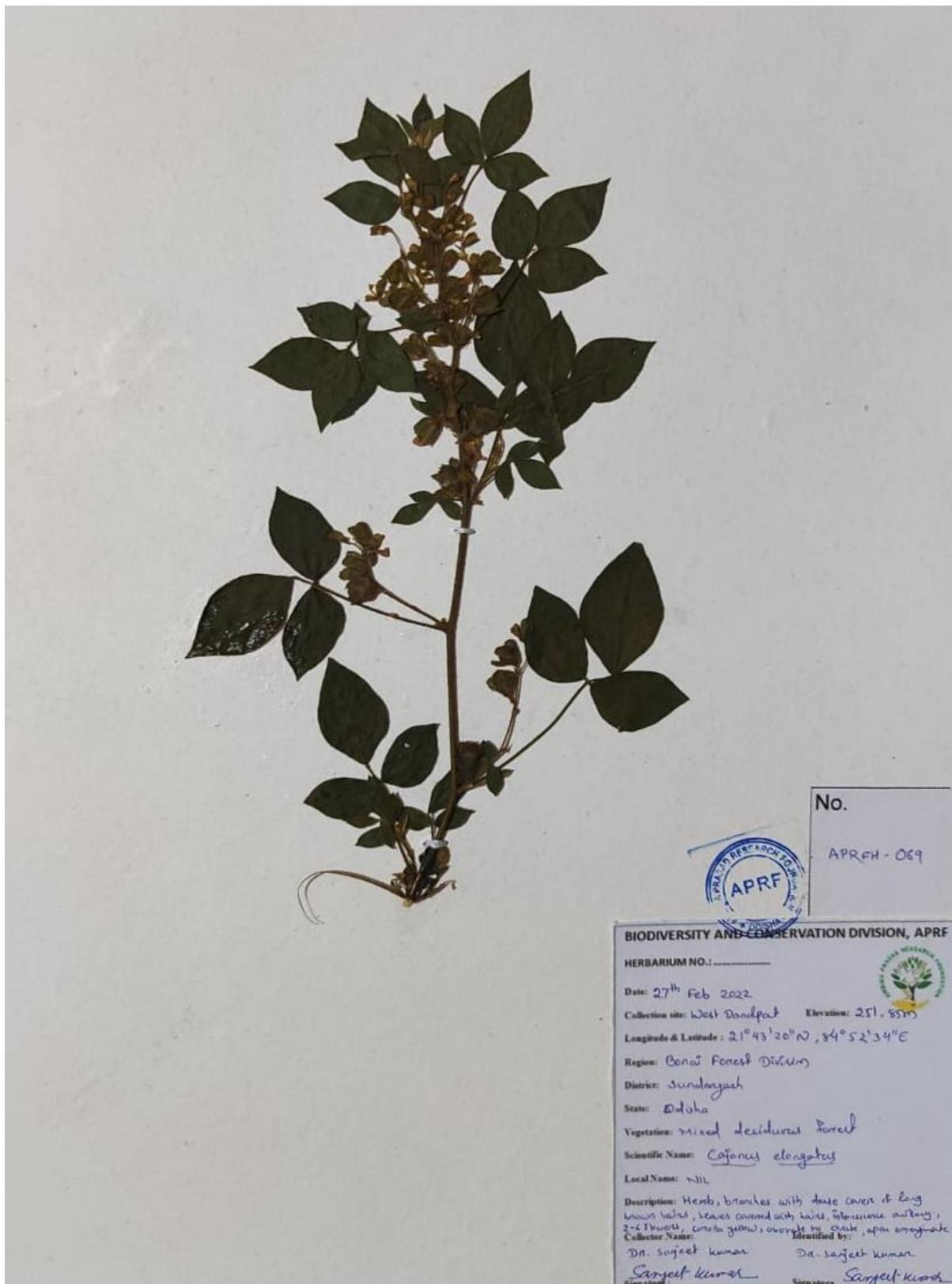


Plate 1: Vegetative parts of *Cajanus elongatus* A) The whole plant with habitat, B) Flower, C) Leaves, D) Inflorescence

Figure 1: Herbarium specimen of *Cajanus elongatus***Acknowledgments**

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Ethical approval

Cajanus elongatus (Benth.) Maesen (Fabaceae) from the state of Odisha was reported. The ethical guidelines for plants & plant materials are followed in the study for sample collection & identification.

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Conflicts of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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